III. MATERIAL AND METHODS

The materials were collected during various seasons from January 1998 to March 2002. Most of the specimens were collected during late spring and early winter seasons from the localities mentioned above. Specimens were collected avoiding weeds, since many species are mixed together. The collected materials were cleaned carefully and gently so that the fragile parts like calyptra, operculum or gemmae may not be lost. The geographical distribution, biological features, edaphic factors, climatic conditions, water and light intensity were also recorded in the field. The materials collected in polythene bags were preserved in preservatives like formalin, alcohol and mainly preserved as herbaria. While preserving great care was taken to ensure that no injury in done to the specimens. Herbaria preservation is best suited for mosses. For preparing herbaria the specimens were air dried at room temperature; highly wet materials were kept spread between sheets of blotting paper but application of weight or pressure in not necessary. These blotting papers were changed in quick intervals so that the mosses become dry. If dried properly the natural colour and luster of mosses remain unchanged. The dried moss specimens were put in small cellophane or
transparent paper envelopes and each envelope is kept in a thick paper packet. The paper packet is pasted with a Herbarium label containing the details such as specimen collection number (BDUM No....), serial number, name of the plant, family, place of collection along with ecological notes.

These materials were soaked in hot water for about 10 to 15 minutes (in some cases boiling water is necessary) to retain turgidity and used for various studies and observations. For quick examination these mosses may be mounted in plain water and the coverslip sealed with paraffin; for longer preparations, specimens were soaked in 50% aqueous glycerine over night and then mounted and sealed. The best method of preparing permanent slides, however, is mounting with gum chloral (40 gm of gum arabic was dissolved in 100 ml of distilled water for 48 hours and added with 20 ml of pure glycerine and 50 gm of chloral hydrate and the mixture was heated gently in a water bath until the chloral hydrate is dissolved; finally the content was filtered through filter paper and cooled).

Various parts of mosses were carefully dissected and observed under stereo binocular microscope. The minute structural details were observed under compound light microscope. Photographs of mosses in field were taken using Minolta field camera. Light microscopic photographs were taken using Nikon Fx 35A labophot (Japan) attached to the binocular research microscope or in a stereo microscope (MEIJI, Japan) fitted with Minolta camera.
The systematic study was done using the floristic works on Indian mosses by Chopra (1975), Chopra and Kumar (1981), Gangulee (1969-80,1985), Van Der Wijk & Chopra (1966). The worldwide distribution of the specimens was recorded using Gangulee (1969-80).

The herbaria (BDUMH- Bharathidasan University Moss Herbaria) of these specimens are preserved in the Department of Plant Science, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India.